1190400006 — Madison Co.
Reilly Tar — RCRA Permits

Alan,
These are Two of the RFA's you had requested. I will get the third one to you next wk.
Kevin Pierard
6-9-98

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: APR 15 1988

SUBJECT: RCRA Facility Assessment
Reilly Tar Chemical Corporation, Granite City, Illinois

FROM: Juara Rojo
RPB, Illinois Section

TO: Facility Management Plan File, ILD 006278360

INTRODUCTION

A RCRA Facility Assessment (RFA) was completed for the Reilly Tar and Chemical Corporation (Reilly Tar) facility in Granite City, Illinois. The purpose of the RFA is to identify releases or potential releases of hazardous constituents requiring further investigations.

The RFA for Reilly Tar included (1) a preliminary review of all available files, including the facility's Certification Regarding Potential Releases from Solid Waste Management Units (SWMUs), (2) a Visual Site Inspection (VSI) on September 9, 1986, and (3) a Sampling Visit (SV) on October 16, 1987.

Reilly's Certification Regarding Potential Releases from SWMUs listed two units: a wastewater treatment plant and a waste pile. Except for those two units, no other solid waste management unit was identified during the VSI. However, a few dark stains were observed on the ground, next to some of the stills and product storage tanks. Reilly Tar representatives explained that those were not SWMUs, but small accidental spills of product (creosote oil). A Reilly Tar representative (John C. Crown) later informed U.S. EPA that concrete pads had been installed under the coal tar stills and receivers (product accumulation tanks) soon after the September 9, 1986 VSI, in order to avoid accidental spills from reaching the ground.

The VSI identified the solid waste piles area as the solid waste management unit of concern. The waste piles, which no longer exist, were located in the southeast corner of the facility. Prior to disposing of the waste piles, Reilly Tar analyzed the waste for the Extraction Procedure Toxicity metals and concluded that the waste piles were not hazardous.

During the Sampling Visit, four soil samples of the waste piles area and two background soil samples were collected by Metcalf & Eddy, Inc. (M&E) personnel, as specified in the U.S. EPA sampling plan for Reilly Tar. The samples collected were analyzed for all the volatile and semi-volatile organic compounds (excluding pesticides) and for the inorganic compounds listed in the Hazardous Substance List (HSL) attached to this report. The data evaluation report prepared by M&E, dated March 1988, includes the analyses results and detailed information on sampling locations. The

analyses results indicate that the waste piles area is contaminated with organic compounds that are listed in 40 CFR Part 261, Appendix VIII.

In addition to the waste piles area, there are two additional solid waste management units which Reilly Tar discovered recently, in the process of closing its surface impoundments. One of the units, located immediately north of the impoundments, consists of a 0.6 acre area where a layer (1 to 4 feet thick) of tar is buried one or two feet below the surface. The other unit is located to the southeast of the impoundments. It consists of an area where thin layers (6 to 12 inches thick) of solid coal are buried at a depth of approximately one foot.

Reilly Tar has not yet provided detailed information about the SWMUs mentioned above. The Company is investigating the SWMUs and trying to identify the wastes that were buried in those two areas. Reilly Tar plans to include the cleanup of these units in the closure activities of the surface impoundments. It should be noted that Reilly Tar is also planning to close its two other hazardous waste units, the covered waste pile, and the drum storage area. Both units are located within the same building, which Reilly Tar has designated as the hazardous waste storage area.

Based on the information available on Reilly Tar, which includes the analytical data on the waste piles area, it has been determined that the following solid waste management units require further investigation: the waste piles area, the land disposal area located immediately to the north of the impoundments and the land disposal area to the southeast side of the impoundments.

The following is a summary of the main activities of the facility and a brief description of the solid waste management units of concern.

FACILITY DESCRIPTION

General

The Reilly Tar & Chemical Corporation is an Indiana corporation with principal place of business at 1510 Market Square Center, 151 North Delaware Street, Indianapolis, Indiana 46204. The Reilly Tar & Chemical Corporation facility in Illinois is located at 19th and Edwardsville Road in Granite City. The facility is surrounded by industrial and commercial areas. The nearest residential neighborhood is approximately 600 feet

west of the surface impoundments, just waste of the site properly boundary. There is a second residential area 1/4 mile north of the site.

Reilly Tar manufactures coal tar pitch, creosote oil and pipeline coating enamel. The enamel is not currently being produced.

Coal tar pitch and creosote oil are manufactured from crude coal tar which is received from steel mill coking operations. The crude coal tar, which comes in rail tank cars, is pumped to storage tanks and then to the stills. Both the distillate (creosote) and the residue (pitch) from the distillation are pumped to storage where they are held pending shipment.

At the start of the distillation process, water contained in the raw material (coal tar) is first removed as a separate distillation cut. This process wastewater contains a high content of organic products, in particular, phenolics and polynuclear aromatic hydrocarbons.

Coal tar base pipeline enamels were manufactured by distillation of a blend which consisted of crude coal tar, ground coal, and slate. The distillation procuced creosote and residue (pipeline enamel).

Wastes

The wastes generated at Reilly Tar are creosote contaminated waste (EPA hazardous waste No.U051) and wastewater treatment sludges (EPA hazardous waste No.K035) generated in the production of creosote.

Groundwater management activities

Groundwater monitoring activities were initiated at the facility in 1982 with the installation of seven monitoring wells in the proximity of the surface impoundments. Analysis of groundwater monitoring data indicated significant statistical differences in water quality between background and hydraulically downgradient wells. Consequently, Reilly Tar was required to implement a groundwater assessment program. Reilly Tar installed five additional monitoring wells in 1984, and thirty two additional ones from September 1986 to December 1987.

The ongoing groundwater assessment monitoring program has shown groundwater contamination exceeding proposed or calculated water quality standards in the area immediately downgradient of the suspected sources, which are the north section of the wastewater treatment impoundment and the recently identified SWMU located north of the impoundment. The contaminants of concern have been volatile aromatics and chlorinated hydrocarbons.

Groundwater flow has been shown to be generally towards the west at rates ranging from 0.2 to 3 ft/day. Groundwater usage in the area of the Reilly Tar facility is primarily for industrial process water. Domestic water usage of groundwater is small in the Granite City area. A Reilly Tar Survey conducted in April 1985, determined that there is no use of groundwater for drinking purposes within a quarter of a mile of its facility. One well located to the southwest has been identified as being used for watering the Madison High School playing fields. Although pumping for irrigation occurs in the area, Reilly Tar claims it is unlikely that irrigation withdrawals occur within three miles of the Reilly Tar site, due to the industrial nature of the Granite City.

Reilly Tar is currently engaged in a groundwater management program to control the migration of contamination. Pumping of two gradient control wells near the western site boundary was initiated in early September 1987 in an effort to stop the contaminants from migrating off-site. A series of seven source control wells were installed along the western perimeter of the surface impoundment in December 1987. Pumping of these source control wells (which began in January 1988), is expected to capture and withdraw the most heavily contaminated groundwater. The source and gradient control well systems are each being pumped at combined rates of 30 gallons per minute. The gradient control wells are discharged direct to the sanitary sewer, while the source control wells are discharged to the refinery wastewater treatment plant.

HAZARDOUS WASTE MANAGEMENT UNITS

Reilly Tar has been operating the following hazardous waste management units under interim status:

Waste Pile (covered)	(S03):	Storage of creosote-contaminated waste (U051).
Drum Storage Area	(S01):	Storage of wastewater treatment sludges from the production of creosote (K035).
Surface Impoundment	(T02):	Treatment of wastewater from the production of creosote. (U035 Sludges)

Reilly Tar is planning to close all of its hazardous waste management units. Currently, Reilly Tar is in the process of closing its surface impoundments. The surface impoundments being closed consist of an impoundment proper (divided into a north section and two south sections) and an overflow area (see Figure 1). The impoundments were used to treat wastewater generated in the production of creosote. According to Reilly Tar, the southern sections of the impoundment did not receive any additional wastewater after they were cleaned out in the summer of 1983. In August

1987, Reilly Tar began work to remove the waste and contaminated soils from the impoundments. The waste removal effort was completed in December 1987. However, the closure activities have not been completed, because Reilly Tar appealed the conditions imposed by Illinois IEPA on its February 22, 1988, approval of Reilly Tar's revised Closure and Post-Closure Plan. In particular, Reilly Tar disagrees with the soil cleanup levels required by the State. There are indications that clean closure of the impoundments is not feasible.

Reilly Tar has expressed its intention to prepare a closure plan for the waste pile and drum storage area after resolution of the impoundments' closure plan appeal.

Except for the soil and groundwater contamination caused by the surface impoundments, no other evidence of releases from hazardous waste management units have been observed as a result of RCRA inspections.

SOLID WASTE MANAGEMENT UNITS

Information provided by Reilly Tar, State files, and the VSI report dated October 15, 1986, indicate that several solid waste management units exist at the facility and that releases of hazardous wastes and constituents have occurred from some of the units. The following is a summary of the SWMU's studied.

Releases of crude coal tar and creosote product

Reilly Tar claims that the stains that have been observed by the rail tank cars and receivers (product accumulation tanks) are accidental spills. The Company installed concrete pads under the stills and receivers in the fall of 1986, in order to avoid accidental spills from reaching the ground. On the other hand, 8,000 gallons of creosote oil were accidentally released to the ground on July 17,1987, while unloading a tank car. According to a letter submitted by Reilly Tar to U.S. EPA on February 19, 1988, 1600 gallons of oil were recovered, and the cleanup was started immediately. Sand was spread to absorb and keep the oil from spreading. IEPA monitored the cleanup efforts. 1,578 yds. of contaminated soil were removed and sent to Peoria Disposal. A concrete spill pad with a 20,000-gallon capacity was installed to contain spills from tank cars, thus avoiding ground contamination from any similar event in the future.

Unless additional information or evidence is obtained which would indicate that uncorrected releases of hazardous materials have occurred at the areas discussed above, no investigation of those areas will be required at this time.

Wastewater treatment plant

The wastewater treatment plant consists of three above-ground treatment tanks; one is a spare. The tanks treat the wastewater which is released as a result of the distillation of coal tar to produce creosote. The treated wastewater is discharged to the local POTW. The treatment plant does not require further action, since it appears properly managed and no information on releases from the plant has been found.

Solid Waste Piles Area

The waste piles which no longer exist, were located in the southeast corner of the facility. A U.S. EPA aerial photograph dated November 28, 1984, indicates that there were three piles of material. Reilly Tar has explained that the Company used to accumulate construction rubble, excavated soil from construction sites and fill dirt, on the ground in that area. During the October 16, 1987 sampling visit, four soil samples from the waste piles area were collected, in addition to two background samples from the facility's main gate area.

The following table lists the hazardous constituents listed in Appendix VIII of 40 CFR Part 261 which were specifically identified in the Solid Waste Piles Area. Figure 2 attached to this report shows the sampling locations.

Appendix VIII	Waste Pile Area Samples				Background Samples	
Constituent, mg/kg	S26	S27	S28	S29	S24	S25
Cadmium					7.8	
Lead			116			
1,1,1-trichlorethane	0.017					
Toluene	0.007					
Fluoranthene	74		160	32		
Benzo(a)Anthracene	41		47			
Benzo(b)Fluoranthene	49		46			
Benzo(a)Pyrene	43		33			
Naphthalene				150		

All of the organic compounds listed above were detected at concentrations two times greater than background sample S25. Based on the analyses results, sample S25 appears less affected by the activities at the facility and more representative of the natural soil conditions in the area. Background sample S25 contained no metal compounds exceeding the maximum concentration for typical soils. (See March 1988, M&E Date Evaluation Report, Contract No.68-01-7351).

In addition to the hazardous constituents listed above, low concentrations of other organic and inorganic contaminants not listed in Appendix VIII were also detected in the Solid Waste Piles Area, and in the background sample S24

(although in lower concentractions than those detected in the Solid Waste Piles Area).

Land Disposal Areas

During the course of removing waste from the impoundments Reilly Tar identified two new SWMUs. One is located immediately north of the impoundments and consists of an area of about 0.6 acres, where a 1 to 4 foot-thick layer of tar is buried one or two feet below the surface. The second SWMU discovered near the impoundments consists of a 6 to 12 inch-thick layer of solid coal buried at a depth of approximately one foot. The information available on these SWMUs is limited; however, clean closure of these units appears unlikely. Groundwater contamination underneath the impoundments area has been confirmed. In addition, soil contamination in the area also appears extensive.

CONCLUSIONS AND RECOMMENDATIONS

The analyses results and the information identified as a result of the file search and site inspections indicate that hazardous constituents have been released into the soil and groundwater at the Reilly Tar facility. Although the information available on two of the SWMUs is limited, there is evidence that corrective actions at the facility are necessary. The major areas of concern are the following:

1. On-site groundwater contamination.
2. Soil contamination in the surface impoundments area and in the overflow area adjacent to the surface impoundments.
3. Soil contamination at the Solid Waste Piles Area.
4. Suspected extensive soil contamination in the vicinity of the surface impoundments due to two (recently discovered) land disposal areas.

Reilly Tar is in the process of closing the surface impoundments and adjacent overflow area. Clean closure of those areas appears unfeasible. The Company's plans are to close all of its regulated units, although a closure plan has not been prepared for the waste pile or the drum storage area.

If a RCRA permit is issued for Reilly Tar, requirements for conducting a RCRA Facility Investigation and a corrective action program will be included in the permit. These requirements will address the areas of concern listed above. However, closure of the facility appears more likely. Should this be the case, either a Corrective Action Order pursuant to 3008(h) or a post-closure permit will be used to require Reilly Tar to characterize the contamination at all the areas of concern and to implement any necessary corrective action program.

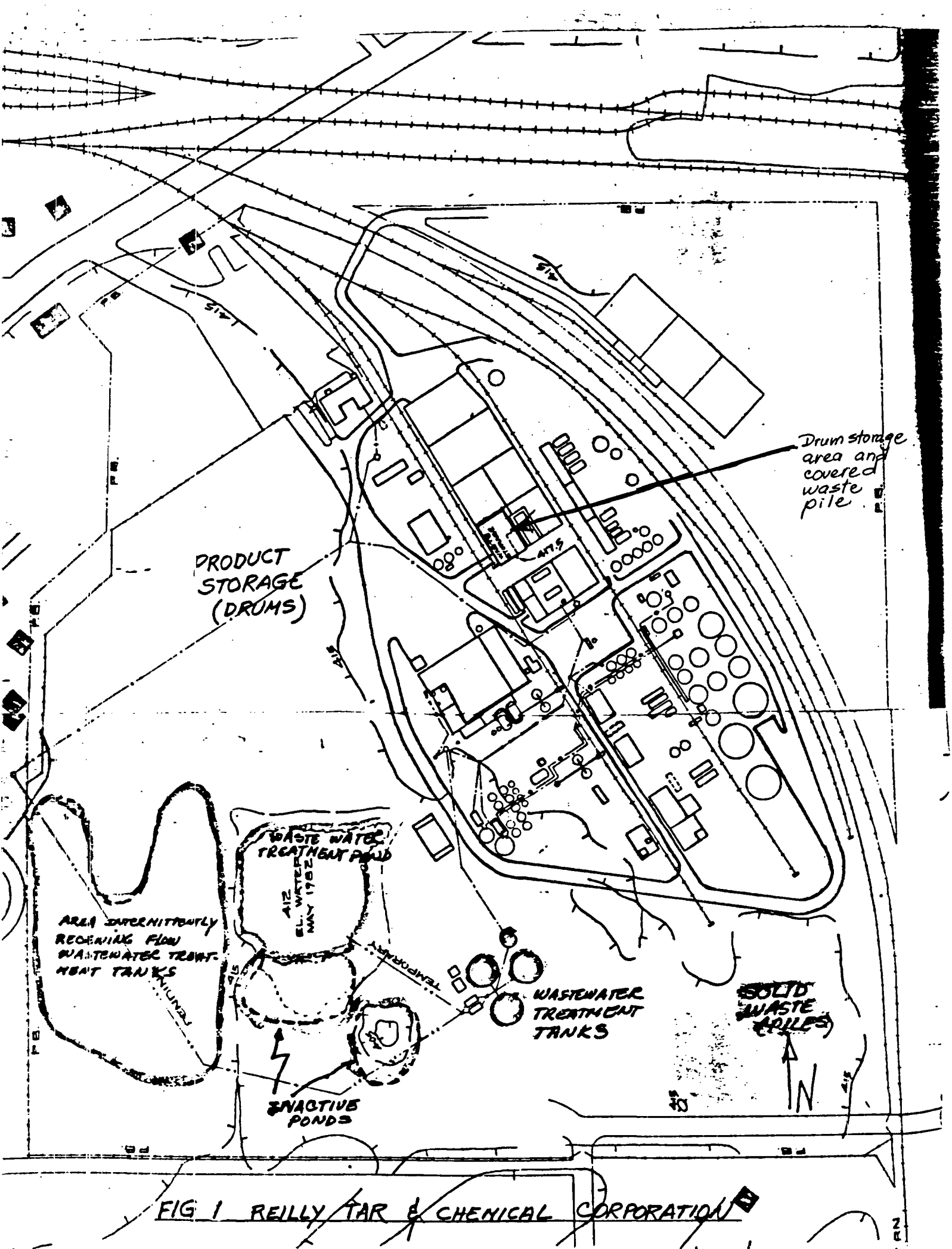

FIG 1 REILLY TAR & CHEMICAL CORPORATION

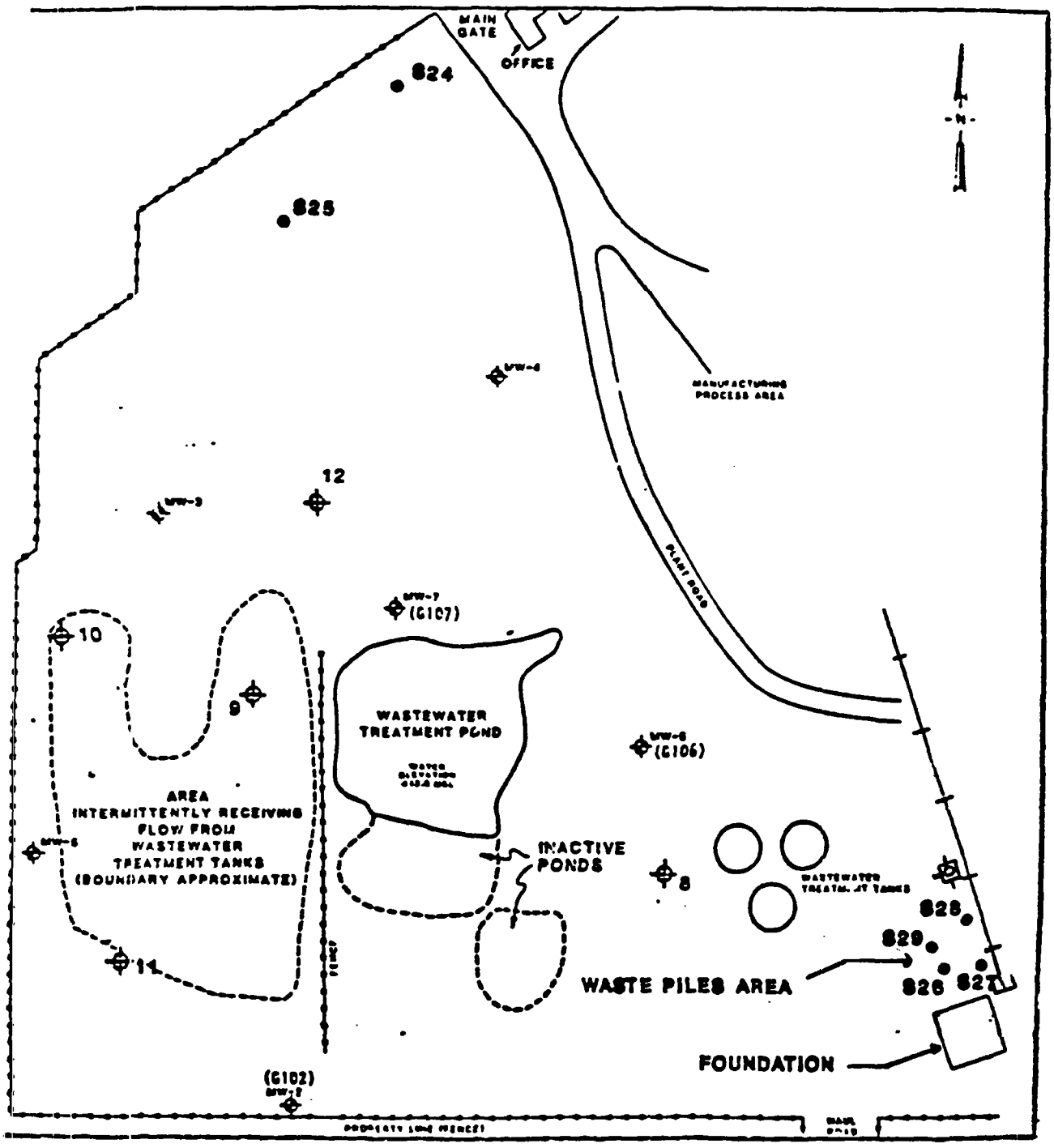

FIGURE 2 SAMPLE LOCATIONS

HSL ORGANIC COMPOUNDS

1. Chloromethane
2. Bromomethane
3. Vinyl Chloride (1)
4. Chloroethane
5. Methylene Chloride
6. Acetone
7. Carbon Disulfide
8. 1,1-Dichloroethene
9. 1,1-Dichloroethane
10. trans-1,2-Dichloroethene
11. Chloroform
12. 1,2-Dichloroethane
13. 2-Butanone
14. 1,1,1-Trichloroethane
15. Carbon Tetrachloride
16. Vinyl Acetate
17. Bromodichloromethane
18. 1,1,2,2-Tetrachloroethane
19. 1,2-Dichloropropane
20. trans-1,3-Dichloropropene
21. Trichloroethene
22. Dibramocloromethane
23. 1,1,2-Trichloroethane
24. Benzene
25. cis-1,3-Dichloropropene
26. 2-Chloroethyl Vinyl Ether
27. Bromoform
28. 2-Hexanone
29. 4-Methyl-2-pentanone
30. Tetrachloroethene
31. Toluene
32. Chlorobenzene
33. Ethyl Benzene
34. Styrene
35. Total Xylenes
36. Phenol
37. bis(2-Chloroethyl)ether
38. 2-Chlorophenol
39. 1,3-Dichlorobenzene
40. 1,4-Dichlorobenzene
41. Benzyl Alcohol
42. 1,2-Dichlorobenzene
43. 2-Methylphenol
44. bis(2-Chloroisopropyl)ether
45. 4-Methylphenol
46. N-Nitroso-Dipropylamine
47. Hexachloroethane
48. Nitrobenzene
49. Isophorone
50. 2-Nitrophenol
51. 2,4-Dimethlphenol
52. Benzoic Acid
53. bis(2-Chloroethyoxy)methane
54. 2,4-Dichlorophenol
55. 1,2,4-Trichlorobenzene
56. Naphthalene
57. 4-Chloroaniline
58. Hexachlorobutadiene
59. 4-Chloro-methylphenol (para-chloro-meta-cresol)
60. 2-Methylnaphthalene
61. Hexachlorocyclopentadiene
62. 2,4,6-Trichlorophenol
63. 2,4,5-Trichlorophenol
64. 2-Chloronaphthalene
65 2-Nitroaniline
66. Dimethyl Phthalate
67. Acenaphthylene
68. 3-Nitroaniline
70. 2,4-Dinitrophenol
71. 4-Nitrophenol
72. Dibenzofuran
73. 2,4-Dinitrotoluene
74. 2,6-Dinitrotoluene
75. Diethylphthalate
76. 4-Chlorophenyl Phenyl Ether
77. Fluorene
78. 4-Nitroaniline
79. 4,6-Dinitro-2-methylphenol
80. N-nitrosodiphenylamine
81. 4-Bromophenyl Phenyl Ether
82. Hexachlorobenzene
83. Pentachlorophenol
84. Phenanthrene
85. Anthracene

TABLE 1

HSL ORGANIC COMPOUNDS (continued)

86. Fluoranthene
88. Pyrene
89. Butyl Benzl Phthalate
90. 3,3'-Dichlorobenzidine
91. Benzo(a)anthracene
92. bis(2-ethylhexyl) phthalate
93. Chrysene
94. Di-n-octyl Phthalate
95. Benzo(b)fluoranthene
96. Benzo(k)fluoranthene
97. Benzo(a)pyrene
98. Indeno(1,2,3-cd)pyrene
99. Dibenz(a,h)anthracene
100. Benzo(g,h,i)perylene
101. alpha-BHC
102. beta-BHC
103. delta-BHC
104. gamma-BHC
105. Heptachlor
106. Aldrin
107. Heptachlor Epoxide
108. Endosulfan I
109. Dieldrin
110. 4,4'-DDE
111. Endrin
112. Endosulfan II
113. 4,4'-DDD
114. Endosulfan Sulfate
115. 4,4'-DDT
116. Endrin Ketone
117. Methoxychlor
118. Chlordane
119. Toxaphene

120. AROCLOR-1016*
121. AROCLOR-1221*
122. AROCLOR-1232*
123. AROCLOR-1242*
124. AROCLOR-1248*
125. AROCLOR-1254*
126. AROCLOR-1260*

* = PCB compounds

HSL INORGANIC COMPOUNDS

Element
Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Mercury
Nickel
Potassium
Selenium
Silver
Sodium
Thallium
Vanadium
Zinc
Cyanide